UTRGV COURSE SYLLABUS

UTRGV Course: ELEE 4321 Automatic control
Instructor Name: Wenjie Dong
Term: Spring 2017
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Times and location: TR10:50am-12:05pm, ENGR 1. 262 (Edinburg), Life & Health Sciences #61 2.312 (Brownsville)
Office location and hours: ENGR 3.242, TR 3:30pm-5:00pm or by appointment

Textbook and/or Resource Material

Course Description and Prerequisites
Dynamic system modeling; system stability; time-domain analysis; root-locus technique; frequency-domain analysis; control system design. Prerequisites: ELEE 3321 and MATH 3341.

Learning Objectives/Outcomes for the Course
To learn basic control concepts and basic analysis and synthesis methods for automatic control systems.

Course learning outcomes are:
1. Students will be able to understand the basic fundamental of linear control theory.
2. Students will be able to model a simple dynamic LTI system using a transfer function representation.
3. Students will be able to calculate the closed-loop control system transfer function from a block diagram representation of the feedback system.
4. Students will be able to analyze and quantify the time-response of linear dynamic systems.
5. Students will be able to represent desired system performance in mathematical form.
6. Students will be able to obtain a model (transfer function) for a linear second order system via the time-domain step response plot of the system.
7. Students will be able to check the stability of linear dynamic systems using the Routh-Hurwitz criterion.
8. Students will be able to sketch root locus of a system and be able to design controllers with the aid of root locus techniques.
9. Students will be able to sketch Bode plots and Nyquist plots and be able to design controllers with the aid of frequency response.

Grading Policies
Your final grade depends on your points for the following parts: 1. Homework, 2. Quiz and attendance, 3. Middle term exams, and final exam.

- **Homework:**
  1. Homework is assigned on Thursday weekly and is due just before the class of the next Thursday.
  2. No make-up for homework unless it is arranged by the instructor in advance.

- **Attendance/Quiz:**
  1. Attendance of class is required. Your attendance is checked by taking quiz
  2. You may be absent for two times without the instructor's approval.

- **Middle term exams:**
  1. There are three middle term exams. The date for each exam will be announced one week before it.
  2. Make-up for a missed exam will not be permitted unless it has been arranged in advance.

- **Final exam:**
  1. The date for the final exam will be announced in class.
  2. Make-up for the missed final exam will not be permitted for any situation.

Calendar of Activities
The UTRGV academic calendar can be found at http://my.utrgv.edu at the bottom of the screen, prior to login.

Other Course Information
Topics (tentative):

1. Overview of control systems
2. Modeling in frequency domain
3. Time response
4. Reduction of multiple subsystems
5. Stability
6. Steady-state errors
7. Root locus techniques
8. Design via root locus
9. Frequency response techniques
10. Design via frequency response
11. System analysis and design in state space.

UTRGV Policy Statements

STUDENTS WITH DISABILITIES:
If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. Brownsville Campus: Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at accessibility@utrgv.edu. Edinburg Campus: Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at accessibility@utrgv.edu.

MANDATORY COURSE EVALUATION PERIOD:
Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Online evaluations will be available Nov. 18 – Dec. 9, 2015. Students who complete their evaluations will have priority access to their grades.

ATTENDANCE:
Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

SCHOLASTIC INTEGRITY:
As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE:
In accordance with UT System regulations, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

COURSE DROPS:
According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the "3-peat rule" and the "6-drop" rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.